



# US3ABF THRU US3MBF

## Surface Mount Ultrafast Recovery Rectifier

Reverse Voltage – 50V~1000 V

Forward Current – 3.0 A

### FEATURES

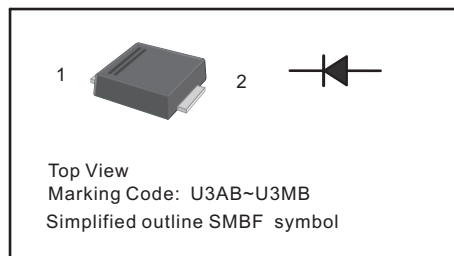
- For surface mounted applications
- Low profile package
- Glass Passivated Chip Junction
- Easy to pick and place
- High efficiency
- Lead free in comply with EU RoHS 2011/65/EU directives

### MECHANICAL DATA

- Case: SMBF
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 57mg / 0.002oz

### PINNING

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



### Maximum Ratings and Electrical characteristics

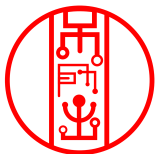
Ratings at 25 °C ambient temperature unless otherwise specified.

Single phase half-wave 60 Hz, resistive or inductive load, for capacitive load current derate by 20 %.

| Parameter                                                                                                      | Symbols                              | US3ABF     | US3BBF | US3DBF | US3GBF | US3JBF | US3KBF | US3MBF | Units |
|----------------------------------------------------------------------------------------------------------------|--------------------------------------|------------|--------|--------|--------|--------|--------|--------|-------|
| Maximum Repetitive Peak Reverse Voltage                                                                        | V <sub>RRM</sub>                     | 50         | 100    | 200    | 400    | 600    | 800    | 1000   | V     |
| Maximum RMS voltage                                                                                            | V <sub>RMS</sub>                     | 35         | 70     | 140    | 280    | 420    | 560    | 700    | V     |
| Maximum DC Blocking Voltage                                                                                    | V <sub>DC</sub>                      | 50         | 100    | 200    | 400    | 600    | 800    | 1000   | V     |
| Maximum Average Forward Rectified Current<br>at T <sub>c</sub> = 125 °C                                        | I <sub>F(AV)</sub>                   | 3          |        |        |        |        |        |        | A     |
| Peak Forward Surge Current 8.3 ms Single Half<br>Sine Wave Superimposed on Rated Load                          | I <sub>FSM</sub>                     | 80         |        |        |        |        |        |        | A     |
| Maximum Instantaneous Forward Voltage at 3 A                                                                   | V <sub>F</sub>                       | 1.0        |        |        | 1.3    | 1.68   |        |        | V     |
| Maximum DC Reverse Current    T <sub>a</sub> = 25 °C<br>at Rated DC Blocking Voltage    T <sub>a</sub> =125 °C | I <sub>R</sub>                       | 5<br>100   |        |        |        |        |        |        | μA    |
| Maximum Reverse Recovery Time <sup>(1)</sup>                                                                   | t <sub>rr</sub>                      | 50         |        |        |        | 75     |        |        | ns    |
| Typical Thermal Resistance <sup>(2)</sup>                                                                      | R <sub>θJA</sub><br>R <sub>θJC</sub> | 45<br>15   |        |        |        |        |        |        | °C/W  |
| Operating and Storage Temperature Range                                                                        | T <sub>j</sub> , T <sub>stg</sub>    | -55 ~ +150 |        |        |        |        |        |        | °C    |

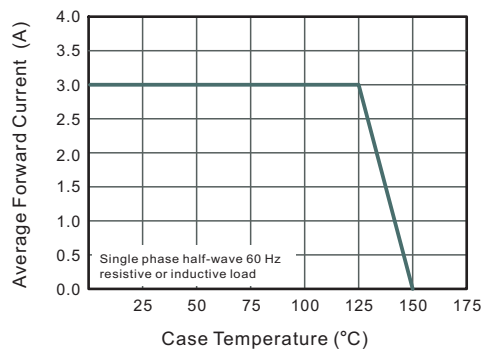
( 1 ) Measured with  $I_F = 0.5\text{ A}$ ,  $I_R = 1\text{ A}$ ,  $t_r = 0.25\text{ A}$ .

( 2 ) P.C.B. mounted with 2.0" X 2.0" (5 X 5 cm) copper pad areas.

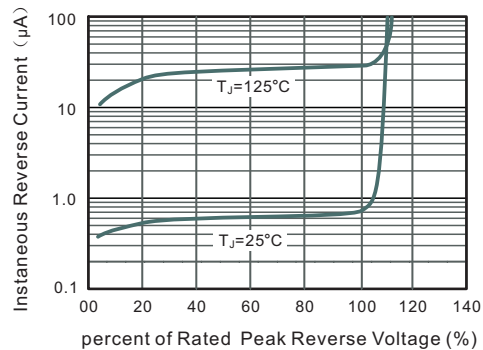


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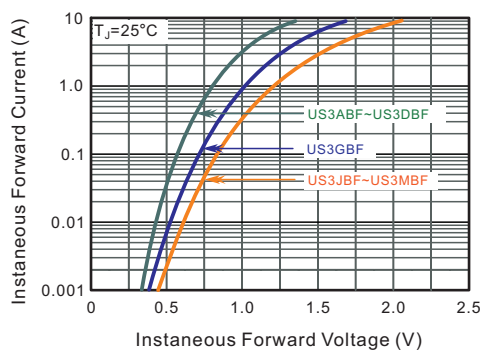
**Fig.1 Maximum Average Forward Current Rating**



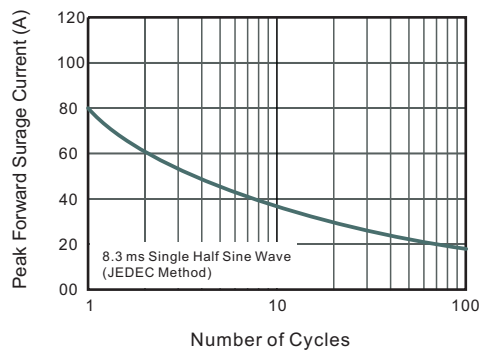
**Fig.2 Typical Reverse Characteristics**



**Fig.3 Typical Forward Characteristics**



**Fig.4 Maximum Non-Repetitive Peak Forward Surge Current**



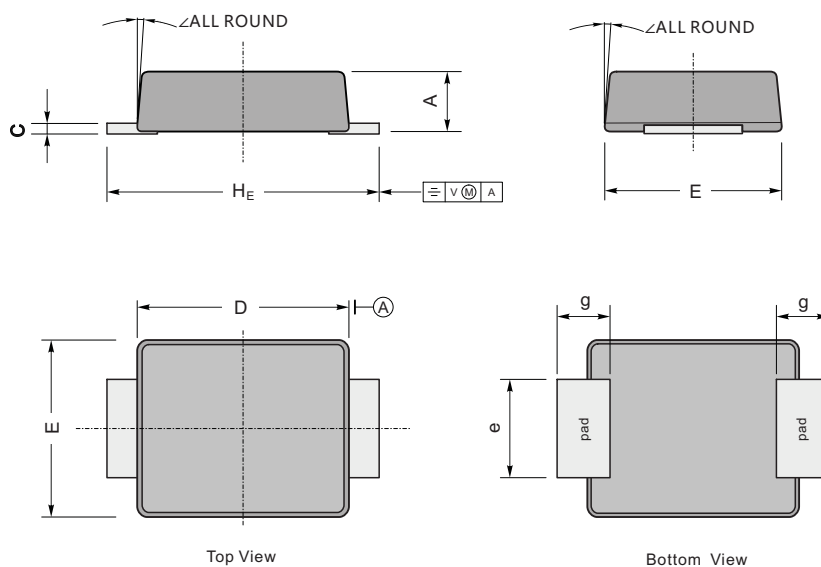


# US3ABF THRU US3MBF

## PACKAGE OUTLINE

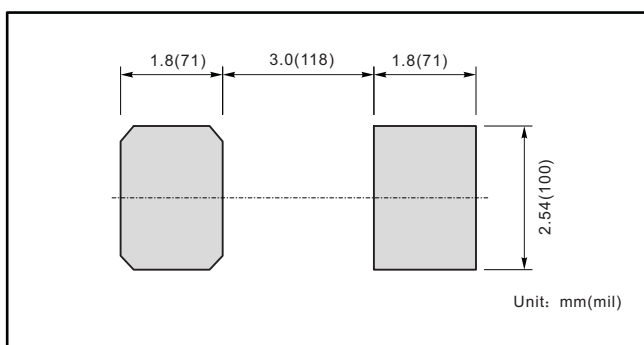
Plastic surface mounted package; 2 leads

SMBF



| UNIT |     | A   | C    | D   | E   | H <sub>E</sub> | e   | g   | ∠  |
|------|-----|-----|------|-----|-----|----------------|-----|-----|----|
| mm   | max | 1.3 | 0.26 | 4.4 | 3.7 | 5.5            | 2.2 | 1.0 | 9° |
|      | min | 1.1 | 0.18 | 4.2 | 3.5 | 5.1            | 1.9 |     |    |
| mil  | max | 51  | 10   | 173 | 146 | 216            | 86  | 40  |    |
|      | min | 43  | 7    | 165 | 138 | 200            | 75  |     |    |

## The recommended mounting pad size



## Marking

| Type number | Marking code |
|-------------|--------------|
| US3ABF      | U3AB         |
| US3BBF      | U3BB         |
| US3DBF      | U3DB         |
| US3GBF      | U3GB         |
| US3JBF      | U3JB         |
| US3KBF      | U3KB         |
| US3MBF      | U3MB         |